## INTERNATIONAL SEARCH REPORT

International application No PCT/JP2005/018731

## A CLASSIFICATION OF SUBJECT MATTER

Int Cl 7 H01L21/301 (2006 01), H01L33/00 (2006 01), H01L21/02 (2006 01)

According to International Patent Classification (PC) or to both national classification and P C

## B FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int Cl <sup>1</sup> H01L21/301 (2006 01), H01L33/00 (2006 01), «01121/02 (2006 01)

Documentation searched other than πunimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922 1996

Published unexamined utility model applications of Japan 1971 2005

Registered utility model specifications of Japan 1996 2005

Published registered utility model applications of Japan 1994-2005

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C DOCUM	ENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropπate, of the relevant passages	Relevant to claim No
Y	JP 2004-31526 A (TOYODA GOSEI K.K.) 2004.01.29, [0013] -[0015] .[0020] .[0021] , Fig. 1 and 4 & EP 1376687 A2 & CN 1484328 A	1-4,6-10, 13-16,19-24
А		5,11,12, 17,18
Y	JP 2001-77056 A (SEIKO EPSON K.K.) 2001.03.23, [0029] .: 0030] (Family:none)	1-4 , 6-10, 13-15 , 20-24
Y	JP 1-214010 A (SUMITOMO DENKI KOGYOU K.K.) 1989.08.28, Claims (Family:none)	1-4 , 6-10 , 13-16, 19-24

"A" "E" "L' "O"	is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later	understar  document be consinventive  document be consinuentine combine	date and not m conflict with the not the principle or theory underlyin it of particular relevance, the cla idered novel or cannot be core extep when the document is take at of particular relevance, the cla dered to involve an inventive ste d with one or more other tion being obvious to a person should be a detailed.	ng the invention aimed invention cannot usidered to involve an u alone aimed invention cannot p when the document is such documents, such dilled in the art
than the priority date claimed  Date of the actual completion of the international search  02.11.2005		Date of mailing of the international search report  15.11.2005		
Name and mailing address of the ISA/JP  Japan Patent Office  3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan			fficer Masakazu o +81-3-3581-1101 Ext	3P 3319

in See patent family annex

"T" later document published after the international filing date or

Special categories of cited documents

Further documents are listed m the continuation of Box C

## INTERNATIONAL SEARCH REPORT

International application No. PCT/JP2005/018731

Y JP 9-82587 A (HEWLETT-PACKARD Company) 1-4,6-1 1997.03.28, [0008] (Family:none) 13-15,  Y JP 2002-359402 A (LUMILEDS LIGHTING U.S., LLC) 1-4,6-1	Relevant to claim No
1997.03.28, [0008] (Family:none)  JP 2002-359402 A (LUMILEDS LIGHTING U.S., LLC) 2002.12.13, [0004] & US 2002/139987 Al	
JP 2002-359402 A (LUMILEDS LIGHTING U.S., LLC) 2002.12.13, [0004] & US 2002/139987 A1	1-4,6-10,
2002.12.13, [0004] & US 2002/139987 Al	13-15, 20-2
2002.12.13, [0004] & US 2002/139987 Al	
### DE 10213464 A & TW 540169 A  JP 56-129340 A (TOKYO SHIBAURA DENKI K.K.) 9 1981.10.09, Fig. 3 (Family:none)  JP 2003-151921 A (SANYO DENKI K.K.) 2003.05.23, 10 [0022] -[0025] , Fig. 2 (Family:none)  JP 3-209744 A (K.K. TOSHIBA) 1991.09.12, Fig. 1 (Family:none)  Microfilm of the specification and drawings 14 annexed to the written application of Japanese Utility Model Application No.39683/1987 (Laid-open No. 145608/1988) (MITSUBISHI DENKI K.K.), 1988.09.26, Fig. 3 (Family:none)  JP 7-99345 A (NICHIA KAGAKU KOGYOU K.K.) 24	1-4,6-10,
### DE 10213464 A & TW 540169 A  JP 56-129340 A (TOKYO SHIBAURA DENKI K.K.) 9 1981.10.09, Fig. 3 (Family:none)  JP 2003-151921 A (SANYO DENKI K.K.) 2003.05.23, 10 [0022] -[0025] , Fig. 2 (Family:none)  JP 3-209744 A (K.K. TOSHIBA) 1991.09.12, Fig. 1 (Family:none)  Microfilm of the specification and drawings 14 annexed to the written application of Japanese Utility Model Application No.39683/1987 (Laid-open No. 145608/1988) (MITSUBISHI DENKI K.K.), 1988.09.26, Fig. 3 (Family:none)  JP 7-99345 A (NICHIA KAGAKU KOGYOU K.K.) 24	13-16, 19-2
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Fig. 3 (Family:none)  JP 7-99345 A (NICHIA KAGAKU KOGYOU K.K.) 24	
Y JP 7-99345 A (NICHIA KAGAKU KOGYOU K.K.) 24	
1995.04.11, [0013] , Fig. 4 (Family :none)	<b>! 4</b>
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